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Topics Redux

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Topics From Last Science Team Meeting

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- 1) Tuning
- 2) Radiance statistics calculation packages
- 3) Forward model calculation packages
- 4) TDS status
- 5) RaObs PGE modifications
- 6) Collocating Truth data
- 7) L1b/L2 interface development
- 8) "L2 Problem"
- 9) Frequency shifting
- 10) RTA update
- 11) Angle corrections
- 12) Cloud-free detection
- 13) Simulation schedule
- 14) Level 3 Products
- 15) Surface emissivity and reflectivity bounds

Tuning

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Tuning - (Edward Olsen / Sung-Yung Lee / Larry McMillin) Two software packages - one (provided by NOAA, modified by JPL to run at the TLSCF) to calculate the tuning coefficients from selected (clear FOV) footprints and another to apply the calculated coefficients during the retrievals.

Packages delivered and tested with simulation data. Problem identified which requires new predictor based on solar zenith angle (or other function). In development by Larry McMillin and will be delivered by end of March 2001.

Radiance Statistics Packages

Radiance statistics calculation packages - (Luke Chen / Evan Fishbein) Software packages to compute bias and rms statistics for the comparison of forward-calculated radiance of the retrieved state and the observed radiance over various observation conditions. The calculated radiance is obtained using AIRS_REF_RTA or AIRS_BT package.

Package developed to calculate forward model radiances based on AIRS_bt and compute radiance bias and rms statistics from “Truth” and “Beauty”. AIRS_REF_RTA not yet used.

Forward Model Calculation Packages

Forward model calculation packages -(Luke Chen) Develop input interface for AIRS_REF_RTA to compute desired radiances for a given "truth" state. The interface use various data sources to construct the viewing geometry, surface and atmospheric state as close as to the condition under which AIRS radiance were obtained.

JPL evaluating the RTP format proposed by UMBC. Packages to be developed to utilize these files.

TDS Status

TDS status - (Quentin Sun) Status of the TLSCF Data System

See presentation by Navid Dehghani or Quentin Sun.

RaObs Matchups

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RaObs PGE modifications - (Edward Olsen / Alex Foo). The topic covers the variant which executes at the TDS to produce matchups of all currently identified correlative data sets (marine, PREPQC, ARM/CART).

The V2.1 TDS variant actually consists of two executables:

run_RaObs_Index reads in PREPQC radiosonde truth data(HDF-EOS Point format) and generates a so-called RaObs truth location (index) file(ASCII format).

run_RaObs reads in a truth location(index) file and L1B & L2 data and generates a so-called matchup(based on lat, lon, time) file. This matchup file contains the matched completed L1B and L2 data, but only "index" information of corresponding PREPQC radiosonde data. Future customers will use this matchup file (as well as the truth index file) to retrieve what they want from the original radiosonde truth file to compute what they need.

The run_RaObs_Index executable is generalized so that in the future it can be easily modified to process other data types (like ARM/CART) to a file of the truth location(index) file(ASCII) format. The index file can be fed to the executable run_RaObs to generate the corresponding matctup file.

Collocating Truth Data

CollocatingTruth data - (Eric Fetzer) How different truth data sets may be amalgamated together into a whole

L1b/L2 Interface Development

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L1b/L2 interface development - (Sung-Yung Lee / Evan Manning)

Meetings between calibration and integration teams resulted in a new AIRS L1b interface, and a simple plan for utilizing the QA parameters output at L1b.

"L2 Problem"

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"L2 problem" was the catch-all for the perceived problem in the simulation and retrieval system which leads to larger-than-expected near-surface and surface temperature retrieval differences.

Discussed as part of the results from the last Team Exercise.

Frequency Shifting

Frequency shifting - (Sung-Yung Lee / Larry McMillin) Software capability to calculate or correct radiances to a known detector frequency set for early on-orbit data reduction.

Three RTA sets developed by Larrabee Strow/Scott Hannon. Software developed and tested by Larry McMillin. Delivered to JPL. Implementation deprioritized and delayed.

RTA Update

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RTA update - (Luke Chen / Sung-Yung Lee)

Incorporate the new RTA package delivered by UMBC at the end of August 2000 into AIRS_BT and L2_PGE.

Completed and tested. No further updates or new deliveries expected before launch.

Local Angle Adjustment

Angle correction (Sung-Yung Lee/Larry McMillin)

Completed and tested.

Cloud-free detection

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Cloud-free detection

Main topic of Science Team Meeting!!

Simulation Schedule

Simulation schedule was unclear at the time of the last Science Team Meeting. This usually requires 3-4 weeks of preparation before a Team Exercise to modify the current PGS, simulation system, and generate new simulation and retrieval data products.

Last Team Exercise identified several small changes required to L2_PGE system. No changes proposed to simulation system. Next Team Exercise to focus on existing simulation but utilizing TDS, matchup capability, and sparse truth sets. Will include some changes to "Truth" for simulation generation.

Other issues: transmissive clouds (particularly cirrus), more realistic variability in trace gases, bias detection and correction, off-nominal instrument behaviour

Level 3 Products

Level 3 products - (Stephanie Granger). Level 3 products to be designed and implemented to support climate research community. Planned for L3_PGE delivery to DAAC at L+12 months.

Draft white paper released to Science Team. Need feedback and comments. Also need list of community representatives willing to review draft.

Surface emissivity and reflectivity bounds

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Surface emissivity and reflectivity bounds setting in L2_PGE retrievals.

Limit solutions of retrieved surface emissivity and reflectance to physical limits and allow the retrieved surface temperature to be adjusted instead.